

## CLAIMS

What is claimed is:

1. A method of measuring electrical capacitance in which one or more scanning capacitance microscopes detecting one or more surfaces by means of one or more electrically conductive probes are used to measure one or more electrical capacitances of one or more semiconductor surfaces, the method comprising:
  - one or more first steps wherein one or more clean surfaces are formed on one or more semiconductor samples by surface treatment;
  - one or more second steps wherein at least one of the semiconductor sample or samples on which one or more clean surfaces were formed at at least one of the first step or steps is promptly placed in one or more ultrahigh vacuum environments or one or more inert gas environments and is maintained therein; and
  - one or more third steps wherein one or more electrically conductive probes, on one or more surfaces of which one or more insulating films are formed, are used to measure one or more electrical capacitances of at least one of the semiconductor sample surface or surfaces maintained in one or more ultrahigh vacuum environments or one or more inert gas environments at at least one of the second step or steps.
2. A method of measuring electrical capacitance according to claim 1 in which at least one of the insulating film or films of at least one of the electrically conductive probe or probes is a vapor-deposited film of insulating diamond.
3. A method of measuring electrical capacitance according to claim 1 in which at least one of the insulating film or films of at least one of the electrically conductive probe or probes is a vapor-deposited film of DLC.
4. A method of measuring electrical capacitance according to claim 1 in which at least one of the insulating film or films of at least one of the electrically conductive probe or probes is a vapor-deposited film of alumina.
5. A method of measuring electrical capacitance according to claim 1 in which at least one of the insulating film or films of at least one of the electrically conductive probe or probes is a vapor-deposited film of zirconium oxide.